

**Table of Contents (continued)****1513 N-acetylcysteine prevents reactive oxygen species-mediated myocardial stress in patients undergoing cardiac surgery: Results of a randomized, double-blind, placebo-controlled clinical trial**

*Paschalis Tossios, MD, Wilhelm Bloch, MD, Astrid Huebner, M. Reza Raji, MD, Fotini Dodos, MD, Oliver Klass, MD, Michael Suedkamp, MD, Stefan-Mario Kasper, MD, Martin Hellmich, PhD, and Uwe Mehlhorn, MD, Cologne, Germany*

We investigated the effect of the antioxidant and reactive oxygen species (ROS) scavenger N-acetylcysteine (NAC) versus placebo in 40 patients undergoing coronary artery bypass grafting. Left ventricular 8-iso-prostaglandin-F<sub>2</sub> $\alpha$  and nitrotyrosine formation as markers for ROS-mediated myocardial stress were significantly lower in patients receiving NAC. Thus, ROS-scavenging with NAC attenuates oxidative stress in hearts of patients subjected to cardiopulmonary bypass and cardioplegia.

**1521 Gene expression profile after cardiopulmonary bypass and cardioplegic arrest**

*Marc Ruel, MD, MPH, Cesario Bianchi, MD, PhD, Tanveer A. Khan, MD, Shu Xu, PhD, John R. Liddicoat, MD, Pierre Voisine, MD, Eugenio Araujo, PhD, Helen Lyon, MD, Isaac S. Kohane, MD, PhD, Towia A. Libermann, PhD, and Frank W. Sellke, MD, Boston, Mass*

Microarray techniques were used to define the gene expression changes that occur in the heart and peripheral skeletal muscle of patients undergoing cardiac surgery with cardiopulmonary bypass.

**1531 Changes in left anterior descending coronary artery flow profiles after coronary artery bypass grafting examined by means of transthoracic Doppler echocardiography**

*Masao Yoshitatsu, MD, Yuji Miyamoto, MD, Masataka Mitsuno, MD, Koichi Toda, MD, Masato Yoshikawa, MD, Shinya Fukui, MD, Fumikazu Nomura, MD, Nobuaki Hirata, MD, and Kenji Onishi, MD, Osaka, Hiroshima, and Hyogo, Japan*

We investigated the left anterior descending coronary artery flow profiles after coronary artery bypass grafting (CABG) using transthoracic Doppler echocardiography (TTDE). After successful CABG, TTDE showed a significant increase in peak and mean systolic and diastolic velocities, diastolic velocity time integral (VTI), total VTI, and diastolic-to-systolic VTI ratio.

**1537 Transplantation of cryopreserved muscle cells in dilated cardiomyopathy: Effects on left ventricular geometry and function**

*Nobuhisa Ohno, MD, Paul W. M. Fedak, MD, Richard D. Weisel, MD, Donald A. G. Mickle, MD, Takeshiro Fujii, MD, and Ren-Ke Li, MD, PhD, Toronto, Ontario, Canada*

This study in hamsters was designed to establish proof of the concept that transplantation of cryopreserved peripheral muscle cells into cardiomyopathic hearts can restore left ventricular structure and function. Cryopreservation of donor cells might facilitate a clinically applicable and effective approach for ventricular restoration with cell-transplantation therapy for patients with inherited dilated cardiomyopathy.

## 1549 Pretreatment with phenoxybenzamine attenuates the radial artery's vasoconstrictor response to $\alpha$ -adrenergic stimuli

Joel S. Corvera, MD, Cullen D. Morris, MD, Jason M. Budde, MD, Daniel A. Velez, MD, John D. Puskas, MD, Omar M. Lattouf, MD, William A. Cooper, MD, Robert A. Guyton, MD, and Jakob Vinten-Johansen, PhD, Atlanta, Ga

A brief pretreatment of the radial artery bypass conduit with 1000  $\mu$ mol/L phenoxybenzamine completely attenuated the vasoconstrictor responses to norepinephrine and phenylephrine. A solution containing papaverine/lidocaine alone did not block vasoconstriction to these  $\alpha$ -adrenergic agonists. Performance of a radial artery fasciotomy neither increased the efficacy of the vasodilators nor altered endothelial function.

## Evolving Technology (ET)

## 1555 Evaluation of a novel sutureless anastomotic connector: From endothelial function to mid-term clinical and angiographic follow-up

Subodh Verma, MD, PhD, Paul W. M. Fedak, MD, Lawrence Ko, BSc, Robert J. Cusimano, MD, MSc, Nancy A. Walton, BScN, John D. Parker, MD, and Terrence M. Yau, MD, MSc, Toronto, Ontario, Canada

The St Jude Medical sutureless connector for proximal anastomoses did not impair human saphenous vein graft endothelium-dependent and endothelium-independent vasorelaxation. In patients in whom the connector was implanted, 100% of grafts were patent 6 to 12 months postoperatively but 22% demonstrated non-flow-limiting stenoses at or near the connector.

## 1561 Combined use of off-pump techniques and a sutureless proximal aortic anastomotic device reduces cerebral microemboli generation during coronary artery bypass grafting

John E. Scarborough, MD, William White, MPH, Frantz E. Derilus, BS, Joseph P. Mathew, MD, Mark F. Newman, MD, and Kevin P. Landolfo, MD, for The Neurologic Outcome Research Group (NORG), Durham, NC

Coronary artery bypass grafting with a combination of off-pump techniques and a sutureless proximal aortic anastomotic device significantly reduces cerebral microembolic counts when compared with standard techniques with cardiopulmonary bypass and hand-sewn proximal anastomoses.

## 1568 Magnetic vascular coupling for distal anastomosis in coronary artery bypass grafting: A multicenter trial

Uwe Klima, MD, PhD, Volkmar Falk, MD, PhD, Michael Maringka, Steffen Bargenda, MD, Steven Badack, Anton Moritz, MD, PhD, Friedrich Mohr, MD, PhD, Axel Haverich, MD, PhD, and Gerhard Wimmer-Greinecker, MD, PhD, Hannover, Leipzig, and Frankfurt, Germany

We report the clinical and angiographic results of a multicenter trial in 32 patients who underwent distal coronary artery revascularization utilizing a magnetic anastomotic coupling device.

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1575	<b>Facilitated endoscopic beating heart coronary artery bypass grafting using a magnetic coupling device</b> <i>Volkmar Falk, MD, PhD, Thomas Walther, MD, PhD, Hubert Stein, BSc, BME, Stephan Jacobs, MD, Claudia Walther, MD, Ardawahn Rastan, MD, Gerhard Wimmer-Greinecker, MD, PhD, and Friedrich W. Mohr, MD, PhD, Frankfurt and Leipzig, Germany, and Sunnyvale, Calif</i>
	A closed chest beating heart coronary artery bypass graft procedure using a robotically guided magnetic coupling device was evaluated. The device facilitates the performance of an endoscopic coronary anastomosis on the beating heart.

General Thoracic Surgery (GTS)

1580	<b>Extrapleural regional versus systemic analgesia for relieving postthoracotomy pain: A clinical study of bupivacaine compared with metamizol</b> <i>Mehmet Bilgin, MD, Yigit Akcali, MD, and Fahri Oguzkaya, MD, Kayseri, Turkey</i>
	Controlling pain after thoracotomy is important for patients' comfort and the prevention of possible complications during the postoperative period. The effects of a local anesthetic delivered through a catheter inserted in the extrapleural region by a surgeon and an analgesic agent given systematically on pain after thoracotomy were assessed.
1584	<b>Histogram analysis of computed tomography numbers of clinical T1 N0 M0 lung adenocarcinoma, with special reference to lymph node metastasis and tumor invasiveness</b> <i>Hiroaki Nomori, MD, PhD, Takashi Ohtsuka, MD, Tsuguo Naruke, MD, PhD, and Keiichi Suemasu, MD, PhD, Tokyo, Japan</i>
	Histograms of CT numbers were made for clinical T1 N0 M0 lung adenocarcinomas. The histogram showed 3 patterns: 1 peak at a low CT number, 1 peak at a high CT number, and 2 peaks. The adenocarcinomas with 1 peak at a low CT number had significantly less lymph node metastasis or tumor involvement of vessels or pleura.
1590	<b>Benefit of postoperative adjuvant chemoradiotherapy in locoregionally advanced esophageal carcinoma</b> <i>Thomas W. Rice, MD, David J. Adelstein, MD, Mark A. Chidel, MD, Lisa A. Rybicki, MS, Malcolm M. DeCamp, MD, Sudish C. Murthy, MD, PhD, and Eugene H. Blackstone, MD, Cleveland, Ohio</i>
	In patients with locoregionally advanced esophageal carcinoma, addition of postoperative adjuvant chemoradiotherapy to esophagectomy alone doubled survival time, time to recurrence, and recurrence-free survival. Patients found with locoregionally advanced carcinoma after esophagectomy should be considered for adjuvant therapy.

## 1597 Resection of multifocal non–small cell lung cancer when the bronchioloalveolar subtype is involved

*Peter F. Roberts, MD, Michaela Straznicka, MD, Primo N. Lara, MD, Derrick H. Lau, MD, David M. Follette, MD, David R. Gandara, MD, and John R. Benfield, MD, Sacramento, Calif*

The current staging system is not prognostic for N0 multifocal NSCLC, especially bronchioloalveolar carcinoma. The 5-year survival for complete unilateral or bilateral resection of such tumors was 64% in our study. We recommend resection of N0 multifocal disease when bronchioloalveolar carcinoma is a component.

## 1603 Preoperative chemotherapy for esophageal cancer with paclitaxel and carboplatin: Results of a phase II trial

*R. S. Keresztes, MD, J. L. Port, MD, M. W. Pasmantier, MD, R. J. Korst, MD, and N. K. Altorki, MD, New York, NY*

A phase II preoperative taxane-based chemotherapy trial was conducted in patients with locally advanced esophageal cancer. Overall response rate, resectability rate, and 3-year survival were 61%, 77%, and 48%, respectively. Resected patients had a 3-year survival of 64%.

## 1609 Cisplatin augments cytotoxic T-lymphocyte–mediated antitumor immunity in poorly immunogenic murine lung cancer

*Robert E. Merritt, MD, Ali Mahtabifard, MD, Reiko E. Yamada, BA, Ronald G. Crystal, MD, and Robert J. Korst, MD, New York, NY*

Systemically administered cisplatin enhances the antitumor effect and cure rate of an active immunotherapy strategy in a poorly immunogenic, syngeneic, murine lung carcinoma model. This phenomenon is due to up-regulation of Fas receptor on target tumor cells by cisplatin, resulting in enhanced tumor cell lysis induced by cytotoxic T lymphocytes.

## 1618 Efficacy and safety of single-trocar technique for minimally invasive surgery of the chest in the treatment of noncomplex pleural disease

*Marcello Migliore, MD, PhD, FETCS, Catania, Italy*

The goal of this study was to assess the results and the safety of minimally invasive surgery of the chest through a single trocar in the management of noncomplex diseases. The technique is simple, effective, and beneficial for all patients and opens the possibility to carry out simple procedures without using additional trocars.

## Cardiothoracic Transplantation (TX)

## 1624 Prolonged donor ischemic time does not adversely affect long-term survival in adult patients undergoing cardiac transplantation

*Jeffrey A. Morgan, MD, Ranjit John, MD, Alan D. Weinberg, MS, Afiab R. Kherani, MD, Nicholas J. Colletti, BS, Deon W. Vigilance, MD, Faisal H. Cheema, MD, Gianluigi Bisleri, MD, Thomas Cosola, PA, Donna M. Mancini, MD, Mehmet C. Oz, MD, and Niloo M. Edwards, MD, New York, NY*

Over the last 11 years, 819 adults underwent cardiac transplantation. Prolonged DIT (>250 minutes) did not adversely affect survival, with 1-, 5-, and 10-year actuarial survival of 86.7%, 70.1%, and 50.9%. Procurement of hearts with prolonged DIT is justified in the setting of an increasing recipient pool with a fixed donor population.

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- 1636 Resistance to aspirin after external ventricular assist device implantation**  
*Rémi Houël, MD, Elisabeth Mazoyer, MD, Matthias Kirsch, MD, PhD, Bernadette Boval, MD, Ludovic Drouet, MD, PhD, and Daniel Y. Loisance, MD, Créteil and Paris, France*
- 1638 Doppler microembolic signals during cardiac surgery: Comparison between arterial line and middle cerebral artery**  
*Dimitrios Georgiadis, MD, Antonia Hempel, Ralf W. Baumgartner, MD, and Hans-Reinhard Zerkowski, MD, Halle/Saale, Germany, and Zurich and Basel, Switzerland*
- 1639 Should HIV-positive recipients undergo heart transplantation?**  
*Gianluigi Bisleri, MD, Jeffrey A. Morgan, MD, Mario C. Deng, MD, Donna M. Mancini, MD, and Mehmet C. Oz, MD, New York, NY*
- 1641 Should lungs from donors with severe acute pulmonary embolism be accepted for transplantation? The Hannover experience**  
*Stefan Fischer, MD, MSc, Bernhard Gohrbandt, MD, Anna Meyer, MD, Andre R. Simon, MD, Axel Haverich, MD, PhD, and Martin Strüher, MD, PhD, Hannover, Germany*
- 1643 Isolated persistent fifth aortic arch with systemic-to-pulmonary arterial connection**  
*Mao-Sheng Hwang, MD, Yu-Sheng Chang, MD, Jaw-Ji Chu, MD, and Wen-Jen Su, MD, Taoyuan, Taiwan*
- 1645 Anomalous origin of the left coronary artery from the main pulmonary artery associated with Berry syndrome**  
*Hideaki Senzaki, MD, Haruhiko Asano, MD, Satoshi Masutani, MD, Tamotu Matunaga, MD, Hirotaka Ishido, MD, Mio Taketatu, MD, Toshiki Kobayashi, MD, Nozomu Sasaki, MD, Shunei Kyo, MD, and Yuji Yokote, MD, Saitama, Japan*
- 1648 Successful Fontan procedure for asplenia with pulmonary atresia and major aortopulmonary collateral arteries**  
*Kagami Miyaji, MD, Nobuhiro Nagata, MD, Hikoro Matsui, MD, Takashi Miyamoto, MD, and Kazuo Kitahori, MD, Yokohama, Japan*
- 1650 Closed correction of systemic semilunar valve insufficiency in the neonate**  
*Frank A. Pigula, MD, C. Becket Mahnke, MD, Petros Agnastopolous, MD, Alfonso Casta, MD, Ricardo Munoz, MD, and Sanjiv K. Gandhi, MD, Pittsburgh, Pa*
- 1653 Aortic arch repair with a working beating heart in premature infants**  
*Kozo Ishino, MD, and Shunji Sano, MD, Okayama, Japan*

- 1655 Unroofed coronary sinus syndrome: Diagnosis, classification, and surgical treatment**  
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- 1657 Single-finger subcutaneous defibrillation lead and “active can”: A novel minimally invasive defibrillation configuration for implantable cardioverter-defibrillator implantation in a young child**  
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*Gary L. Grunkemeier, PhD, and YingXing Wu, MD, Portland, Ore*
- 1661 Esophageal perforation during left atrial radiofrequency ablation: Is the risk too high?**  
*A. Marc Gillinov, MD, Patrick M. McCarthy, MD, Gosta Pettersson, MD, Bruce W. Lytle, MD, and Thomas W. Rice, MD, Cleveland, Ohio*
- 1662 Reply**  
*Nicolas Doll, MD, Michael A. Borger, MD, PhD, and Friedrich W. Mohr, MD, PhD, Leipzig, Germany, and Toronto, Ontario, Canada*
- 1662 Atrioesophageal fistula: Is it an unavoidable complication of radiofrequency ablation?**  
*Bingur Sonmez, MD, Ergun Demirsoy, MD, and Oguz Yilmaz, MD, Istanbul, Turkey*
- 1663 Reply**  
*Nicolas Doll, MD, Michael A. Borger, MD, PhD, and Friedrich W. Mohr, MD, PhD, Leipzig, Germany, and Toronto, Ontario, Canada*
- 1663 Authors should list confounding factors and alternative explanations for adverse events seen with new technologies**  
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- 1664 Reply**  
*Lech Hornik, MD, PhD, Bad Oeynhausen, Germany*
- 1664 Pattern of lymphatic spread and prognosis in pN1 non-small cell lung cancer: What does it stand for?**  
*Stefano Margaritora, MD, Alfredo Cesario, MD, and Pierluigi Granone, MD, Rome, Italy*
- 1665 Reply**  
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- 1666 Influence of chromosome 22q11.2 microdeletion on surgical outcome after treatment of tetralogy of Fallot with pulmonary atresia**  
*Adriano Carotti, MD, Bruno Marino, MD, and Roberto M. Di Donato, MD, Rome, Italy*

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1668	<b>Short esophagi and a long career</b> <i>Fernando Augusto Mardiros Herbella, MD, São Paulo, Brazil</i>
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## Notices of Correction

- 1680 Correction of article by Costas Bizakis, MD, Giuseppe Pintucci, PhD, Christopher C. Derivaux, MD, Fiorella Saponara, BA, Jin-Hee Kim, BS, Kevin M. Hyman, MD, Eugene A. Grossi, MD, F. Gregory Baumann, PhD, Paolo Mignatti, MD, and Aubrey C. Galloway, MD, titled "Activation of mitogen-activated protein kinases during preparation of vein grafts and modulation by a synthetic inhibitor" (2003;126:659-65)
- 1680 Correction of article by Marjan Jahangiri, FRCS, James Clark, FRCA, Fredrico Prefumo, MD, Charles Pumphrey, FRCP, and David Ward, FRCP, titled "Cardiac surgery during pregnancy: Pulsatile or nonpulsatile perfusion?" (2003;126:894-5)

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